

## Medical emergencies

### Coital emergencies

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#### Summary

**The act of heterosexual coitus is associated with morbidity due to a variety of conditions as well as with a small risk of sudden death. Awareness of the presentation of coital emergencies is essential to allow appropriate medical management and sexual counselling.**

**Keywords:** coital emergencies

The act of heterosexual coitus is of considerable procreational and some recreational value. Infrequently (almost certainly more often than reported) the act of coitus is associated with morbidity and even mortality. The true incidence of these problems is not known, because of the intimate nature of the precipitating circumstances and a natural reticence to report these to healthcare professionals. This is apart from a large and increasing burden of sexually transmitted disease, which warrants its own specialty. The purpose of this review is to discuss complications of the altered anatomy and physiology consequent on coitus, which may present acutely.

#### Neurological complications

##### HEADACHE

Headache is not infrequently used as a pretext for avoiding coitus. This is not entirely unreasonable as coitus may not only aggravate pre-existing causes of headache but may also precipitate headache. Most often, headache associated with coitus is benign and self-limiting. However, occasionally, a significant vascular or structural neurological disorder may be made evident during coitus. In particular, subarachnoid haemorrhage is well known to be precipitated by coitus, being identified as a causative factor in six out of 50 cases reported on by Lundberg and Osterman.<sup>1</sup>

It is useful for purposes of assessment and differential diagnosis to correlate the onset of the headache with the appropriate phase of sexual activity, either pre-orgasmic, orgasmic or postorgasmic.<sup>2</sup> Pre-orgasmic headache is usually related to intracranial space-occupying lesions, such as tumours, subdural haematoma, giant aneurysms and posterior cranial fossa malformations. The initial component of benign coital headache also belongs to this phase.

Orgasmic headache is often severe and excruciating, whether due to aneurysm rupture or to the explosive component of benign coital headache. In the latter instance, the headache may be produced by the acute pressor response of normal coitus<sup>3</sup> and may be analogous to paroxysmal headaches associated with pheochromocytoma.<sup>4</sup> The importance of the pressor response in precipitating headache was illustrated convincingly in a case of coital headache in association with aorto-iliac obstruction, which resolved after successful aorto-iliac by-pass grafting.<sup>5</sup> Postorgasmic headache may occur as a manifestation of migraine.

Benign coital headache constitutes a distinct clinical entity which is well validated by multiple authors.<sup>6–9</sup> Typically, the headache consists of two components. The initial pre-orgasmic component has been described as dull, tight or cramping occipital headache attributed to contraction of the scalp and neck musculature. This is followed by an explosive severe occipital or generalised headache at orgasm. The condition is more common in men, with a reported age range of 18–58. The clinical course is unpredictable. While recurrences may occur, single episodes are not uncommon. In a series of 26 patients with benign coital headache seen in a private neurological clinic, with variable lengths of follow-up, half had only one episode or one cluster of episodes of headache.<sup>10</sup> No definite periodicity was noted with recurrent episodes.

With a typical story of benign coital headache as described above, computed tomography (CT) may still be necessary, especially with the first episode, to help exclude subarachnoid haemorrhage. This may need to be followed with lumbar puncture if the scan appears normal. However, once subarachnoid haemorrhage can be safely excluded, no further treatment is necessary in the acute phase apart from pain-relieving medication. Recurrent episodes may be an indication for considering the use of propranolol<sup>9</sup> or calcium-channel blockers.<sup>11</sup>

##### STROKE-LIKE PRESENTATIONS

The orgasmic phase of coitus may be associated with arterial spasm.<sup>12</sup> This, combined with the physiological pressor response, may lead to the production

### Common coital emergencies

#### Neurological

- benign coital headache
- aneurysmal subarachnoid haemorrhage
- cerebrovascular accidents

#### Urological

- penile fracture
- priapism
- preputial tears
- penile vessel rupture

#### Cardiovascular

- sudden cardiac death
- myocardial infarction

#### Soft tissue

- soft tissue wounds
- soft tissue infection

#### Immunological

- local allergic reactions
- anaphylaxis

### Box 1

of focal neurological deficit secondary to focal cerebral ischaemia.<sup>13</sup> Thus, cases have been reported of left cerebral hemisphere infarction<sup>14</sup> and of brainstem thrombosis, the onset of which were during orgasm.

Although reported instances are rare, it is worth bearing in mind that alterations in the cerebral vasculature during coitus can predispose to the production of stroke.

### Urological complications

#### PENILE FRACTURE

The penis in its usual flaccid state is protected by its mobility. The erect penis is, however, an injury-prone organ.<sup>15</sup> Direct blunt trauma to the erect penis can produce rupture of a corpus cavernosum, usually but misleadingly termed 'fracture' of the penis. This injury is well described in the urological literature.<sup>16–24</sup>

Direct trauma to the erect penis is usually produced by coitus but can occur under other circumstances, often of an auto-erotic nature, or from accidental blunt trauma.

The usual coital precipitant is vigorous intercourse, when the penis slips out of the vagina and is forcibly thrust against the symphysis pubis or perineum. Coitus in the knee-chest position or in the upright position (when one partner faints) may also lead to the injury. A cracking sound is often heard. There is immediate onset of acute severe pain, rapid detumescence with loss of erection, and rapidly spreading swelling and discolouration of the penis. The latter may lead to the appearance known as an aubergine sign. The penile shaft often deviates to the uninjured side. An extension of the corpus spongiosum and penile urethra occurs in about 20% of cases and is heralded by bleeding via the external urethral meatus.<sup>25–28</sup> Further extension of haematoma to the scrotum, suprapubic region and perineum may occur if Buck's fascia is torn. The usual pattern of injury is a transverse tear in the tunica albuginea surrounding a corpus cavernosum, typically in the base or mid-shaft of the penis. The clinical history and physical examination are usually diagnostic. Ultrasound<sup>29</sup> or corpus cavernosography<sup>30–32</sup> may be helpful in the rare instance where there is diagnostic doubt. The latter investigation is performed by injecting contrast with a 21-gauge butterfly needle inserted into the uninjured corpus cavernosum at the base of the penis. Demonstration of contrast extravasation confirms a diagnosis of penile rupture.

Once a diagnosis is made urgent referral to a urologist for immediate assessment is mandatory. The preferred approach appears to be to surgically expose and repair the tunica albuginea defect.<sup>33–36</sup> Conservative management has, however, been described.<sup>37–38</sup> The risks of nonoperative management include penile plaque formation causing a condition resembling Peyronie's disease, penile curvature or chordee, and abscess secondary to infection of haematoma. Secondary surgery may be needed for some of these complications.

#### PRIAPISM

This can be defined as persistent, painful erection unassociated with sexual desire or excitement. While usually idiopathic or symptomatic of pre-existing disease (particularly haematological) and unassociated with coitus, priapism can follow coitus associated with persistent excitement. This is a urological emergency which if inadequately treated leads to erectile impotence. The characteristic finding is of tense and tender corpora cavernosa associated with a flaccid glans and corpus spongiosum. A cause that is increasingly important and may be associated with coitus follows intracavernosal injection of papaverine when employed as treatment for impotence.<sup>39</sup> This can produce 30–60 minutes of sustained penile erection. Any erection persisting four hours or longer warrants accident and emergency attendance and immediate urological review.

Priapism is generally produced by functional obstruction to the venous outflow from the lacunar spaces in the corpora cavernosa. Immediate treatment that may be helpful in the accident and emergency department includes sedation and analgesia, and intracavernosal decompression with a 19-gauge butterfly needle. This may have to be repeated and can be combined with intracavernosal injection of an alpha-adrenergic agonist (eg, phenylephrine, metaraminol) via a 27- or 30-gauge insulin needle.<sup>40</sup>

Refractory cases may need surgical shunt procedures to decompress the corpora cavernosa. These include proximal corpus cavernosum to corpus spongiosum shunts using perineal anastomosis,<sup>41</sup> distal corpus cavernosum to glans spongiosum shunts,<sup>42</sup> corpus cavernosum to saphenous vein shunts, or corpus cavernosum to penile vein shunts.<sup>43</sup> Delay in decompression leads to irreversible cavernosal thrombosis and impotence.

### Learning points

- coitus is not hazard free
- the existence of certain disorders, eg, ischaemic heart disease, warrants counselling about the risk of coitus
- coital onset acute severe headache requires thorough evaluation
- coital penile trauma almost always requires urgent urological assessment

### Box 2

### OTHER PENILE INJURIES

Rupture of arteries and veins in the erect, engorged penis have also been described.<sup>44,45</sup> These injuries produce prominent bruising but have no effect on viability of the penis. Treatment is nonoperative.

Tears of the preputial skin are not infrequent and occasionally may be associated with prominent bleeding if the frenulum of the glans is torn. Depending on the extent, the laceration may be allowed to heal primarily or require suturing with nonabsorbable suture material. Extensive lacerations may be better treated by formal circumcision. A period of about two weeks abstinence from coital activity is advisable.

### Cardiovascular complications

Coitus produces significant changes in the cardiovascular system.<sup>46–48</sup> These changes are most marked at orgasm and include an increase in heart rate, systolic and diastolic blood pressure, as well as an increase in respiratory rate. These alterations increase myocardial oxygen requirements and are particularly deleterious in individuals with pre-existing ischaemic heart disease and reduced myocardial reserve.

Myocardial infarction can undoubtedly be precipitated by sexual activity though the precise incidence is uncertain. There is also an increased risk of sudden cardiac death during coitus. It has been suggested that 0.6% of sudden deaths occur during coitus, usually in an extramarital relationship.<sup>49</sup>

The risk of sudden death may also be increased in the weeks following myocardial infarction. A period of six to eight weeks abstinence from sexual activity is usually advised following myocardial infarction.<sup>50</sup>

### Soft tissue complications

Specific precoital and coital activities as well as the higher pain threshold during coitus may lead to soft tissue trauma and predispose to soft tissue infections.

A study of traumatic 'love bites' revealed neck cellulitis, abscesses in the neck and breast, nipple avulsion, venous bleeding from the neck and a neck mass due to a broken, retained, plastic tooth.<sup>51</sup>

A distinction was made between pre-coital and coital love bites. Pre-coital bites are the result of gentle nibbling or strong continuous suction on the skin and the skin is not usually breached. Coital love bites often cause a breach of epithelial continuity as they are likely to be deeper due to the higher pain threshold during this phase.

### Immunological complications

Considering that human seminal fluid has antigenic properties, it is surprising that allergic reactions are seldom reported. Allergic responses to coitus may be local phenomena, producing vaginal itching, burning and stinging sensation, or may become generalised, leading to urticaria and anaphylaxis. The latter is more common in individuals with an atopic diathesis.<sup>52–55</sup>

The reactions encountered are usually type I hypersensitivity reactions caused by a species-specific prostatic protein. Systemic reactions should be treated using standard protocols. Local reactions may be avoided by the use of condoms<sup>56</sup> or, less reliably, by abstinence from coitus. Skin testing helps in arriving at the diagnosis, the antigen used being fresh seminal fluid.

It is worth remembering that condoms, lubricants and spermicidal agents may themselves cause allergic reactions. Recognition can be difficult and management requires avoidance of the responsible antigenic stimulus.

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